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AUTHOR Romer, Gail H.
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ABSTRACT

If parents, school personnel, or other caring adults want to reduce the number of stressors or the amount of stress experienced by school children, these adults must first recognize childhood stress, identify children's stressors, and evaluate the stress. This literature review reveals how adults can accomplish these goals by defining stress, linking stress to health, and reviewing assessment techniques available for use with children. Adult perception still controls both investigation and assessment. Until recently, researchers seldom asked children about their experiences of stress, and research hypotheses came from studies on adult stress. Techniques available for use in assessing stress in children include behavioral observation, physiological assessment, adult rating scales of children, child self-report inventories, and interviews with children. Comprehensive use of these techniques, while including the children's perspective, makes possible the accurate and authentic assessment of stress in children. Reducing stress, thereby maintaining or improving school children's health, can follow. (Contains 38 references.) (Author/SLD)

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Assessing Stress in Children: A Literature Review

Gail H. Romer

University of Tennessee, Knoxville

PRESENTED AT THE 1993 MID-SOUTH EDUCATIONAL RESEARCH ASSOCIATION CONFERENCE, NEW ORLEANS, LOUISIANA, 9-12 NOVEMBER 1993

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Abstract

School children encounter stressors and experience stress in many aspects of their lives. Too many stressors and too much stress can have detrimental effects on children's health. If parents, school personnel, or other caring adults want to reduce the number of stressors or the amount of stress experienced by school children, these adults first must recognize childhood stress, identify children's stressors, and evaluate the stress.

This literature review reveals how adults can accomplish these goals listed above, assessing stress in children. It contains definitions of stress, links stress to health, and reviews assessment techniques available for use with children.

Although more researchers now study stress in children, adult perception still controls both investigation and assessment. Until recently, researchers seldom asked children about their experience of stress. Research hypotheses come from studies on adult stress. Few researchers modify adult stress measures for use with children; fewer yet develop tools specifically for children, and virtually all discussion of results stems from adult interpretations.

Techniques available for use in assessing stress in children include behavioral observation, physiological assessment, adult rating scales of children, child self-report inventories, and interviews with children. Comprehensive use of these techniques, while including the children's perspective, makes possible the accurate and authentic assessment of stress in children. Reducing stress, thereby maintaining or improving school children's health, can follow.

ASSESSING STRESS IN CHILDREN

Concept of Stress in Children

Children encounter stressors and experience stress in many aspects of their lives. But too many stressors or too much stress can have detrimental effects on their health. The harmful effects on children's health can be decreased or moderated by reducing the number of stressors or the amount of stress they experience. Parents, school personnel, or other caring adults who want to reduce stress in school children must begin by recognizing childhood stress, identifying children's stressors, and evaluating the stress.

This paper offers information about these first steps toward maintaining or improving school children's health. I will show how adults can recognize childhood stress and identify common stressors in children's lives. I also will review techniques available for assessing stress in children. A future paper will present strategies for eliminating or coping with stressors and the resultant stress experienced by children.

One of the first steps toward recognizing stress in school children is understanding its definition. However, despite the following definitions of stress, in the current literature there seems to be little agreement on an appropriate definition for stress in children (Godberger & Breznitz, 1982).

Dictionaries mention words like disruptive, disquieting, pressure, strain, and distress in their definitions. And Patterson and McCubbin (1983) use a very technical, yet generic, defintion: "'Stress' is the organism's physiological and psychological response to...stressors, particularly when there is a perceived imbalance between environmental demands (life changes) and the individual's capability to meet these demands" (pp. 255 to 256).

Looking to practical sources for a definition we can turn to Selye, a major researcher on stress and our reaction to it. He defined stress in terms of the body's response to demands. Honig is a scholarly researcher-writer who explores the issue of children's stress. Her 1986 review of literature cites several definitions, including "a nonspecific response of the body to any demand that exceeds the person's ability to cope, as a person-environment relationship that threatens or taxes personal resources, and as a mental state in response to strains or daily hassles" (p. 51).

Of six child psychology texts surveyed, only one discusses stress per se. This 1986 text, by Sarafino and Armstrong, defines stress in children by identifying sources of stress. Three main sources of stress for

children are family, peers, or illness. The authors continue their discussion of stress in children by identifying other stressors common to many children. Separation from or loss of a loved one by divorce or death of parents and school pressures rank high among childhood stressful life events. Sarafino and Armstrong also identify the competition, success, and expectations associated with stressful situations as key aspects in childhood stress.

Other texts deal with similar stressors and child responses, yet they use different words or refer to related topics such as anxiety, distress, fear, depression, and phobias. Many research articles emphasize the role of external stressors, such as life changes, adult demands, and peer pressures, in producing stress reactions in children. Researchers currently define childhood stress by identifying children's stressors or by describing children's responses to the stressors.

Stress and Health

As educators, we are interested in childhood stress because of its direct link with health. Understanding this link provides another area in which we can work to maintain or improve the health of our school children.

Stress also relates closely to emotions. Connections between health and emotions have been widely studied. Therefore, we can discuss stress in light of Cannon's 1927 seminal research on emotions. He demonstrated the effects of emotional arousal on physiological processes. We can explain these same effects in terms of the body's homeostatic system. Life changes upset the homeostasis, requiring that adjustments be made. Too much adjustment taxes the system and produces stress. Holmes and Rahe (1967) continued this train of thought, relating events that require life change to illness and accident rates (Patterson & McCubbin, 1983). In another theory, the stress process model "posits that high levels of stress in the environment contribute to the risk of experiencing mental health problems and that other environmental factors or personality factors can either increase or decrease a person's vulnerability to this stress" (Roosa, Gensheimer, Short, Ayers, & Shell, 1989, p. 296).

In 1984, another giant in the field of emotions, Lazarus, offered an alternative model to Selye's general adaptation syndrome. According to Selye's theory, we physically react in the same pattern over time to all

stressors. However, Lazarus suggests that the "cognitive variables that affect the interpretation of stressful events are more important than the events themselves" (Feist & Brannon, 1988, p. 115).

All of these theories relate stress to health. Stress presumably affects both mental and physical health, but the relationship is complicated and dynamic. How children's health is affected depends on many personal and environmental factors, including how long the stress lasts (Selye), how the child interprets or appraises the stressor (Lazarus), and a child's individual coping skills (Folkman, Coyne, & Lazarus).

Current empirical research supports the notion that stress negatively influences children's health. Research has evaluated specific stressors for their effect on indicators of mental, physical, and emotional or psychological health. Investigators also have researched personal and demographic variables to determine their roles as mediators or moderators in buffering the negative effects of stress on children. Cowen and Work (1988) have opened avenues of inquiry into the antecedents and determinants of resilience when they investigated heightened resilience and invulnerability in profoundly stressed children. Matheny, Aycock, and McCarthy (1993) identified three categories of children's stress symptoms: disruptive behavior, work-study difficulties, and emotional-social-cognitive difficulties.

To learn more about stress and its effect on children's health, some studies have investigated particular conditions as potential stressors for children. Roosa, Gensheimer, Short, Ayers, and Shell (1989) identified children in alcoholic families as being at risk for mental health problems produced by the many potential stress factors found in these families. Swirsky-Sacchetti and Margolis (1986) studied stress and its effects on hemophiliac children after several previous investigations showed a relationship between psychological stress and spontaneous bleeding following emotional stress (p. 72).

Another source of possible stressors, appropriate or inappropriate classrooms, is near and dear to the hearts of educators. This arena offers another topic for childhood stress researchers. Drawing heavily on the theoretical frameworks of Piaget and Montessori, the National Association for the Education of Young Children (NAEYC) describes "appropriate" and "inappropriate" in a 1989 statement. Using the concepts of age and individual appropriateness, the organization identifies classrooms and methods that respect typical child development within an age range and the uniqueness of each child as appropriate. The organization considers inappropriate those classrooms in which educational practices ignore children's development.

A study conducted by Burts, Hart, Charlesworth, and Kirk (1990) investigated developmentally appropriate versus inappropriate classrooms and instructional methods used with kindergarten children. Researchers observed and analyzed stress behaviors exhibited by children involved in different activities and during different periods of the day. Although some differences were found by types of activity and group size, overall results indicated that children exhibit more stress behaviors in classrooms that are developmentally inappropriate than in developmentally appropriate classrooms.

Other researchers have investigated stressors in the lives of chronically ill children. Their height, weight, and pulmonary functioning provided measures of their health. The authors related these measures to family life events and changes (Patterson & McCubbin, 1983). When family life changes "pile up," the children's pulmonary functioning tends to decline. Stressors emanating from the family negatively affected the children's health, e g., "a decrease in percent of predicted capacity of overall pulmonary functioning" (Patterson & McCubbin, 1983, p. 261).

Loss of a family member is one of the most stressful life events experienced by children. This stressor requires a considerable amount of adjustment in the child. Nelson (1982) compared social and emotional adjustment of children coping with the loss of "father" by death or divorce to the adjustments made by children in two-parent families. Children of widows and divorcees reported significantly poorer emotional adjustment on a self-appraisal inventory, but did not differ from children of married women in parental and teacher behavioral-problem ratings. "Personality problems following fathers' death and conduct problems following father loss by divorce may be immediate, transitory reactions that dissipate within one to two years following the loss" (p. 56).

Pollari and Bullock (1989) investigated another potential stressor in children's lives. These authors identified moving as stressful to children and highlighted some key components of this stressor: little control of the situation, misunderstandings from minimal communication, lost identity in home and social network, and readjustment to a new school. The authors suggest some strategies for assisting children who have experienced a recent move. I will discuss these strategies in a future paper on reducing stress in school children.

Other research attention has focused on mediating or modifying factors, the personal characteristics, or demographics, of children's lives that can moderate the negative and harmful effects of stress on their health. The review of research literature done by Compas (1987) reveals three of these factors. One modifier is the

child's disposition and constitutional characteristics, including temperament, high self-esteem, internal locus of control, and autonomy. A second factor, affecting the child's health as related to stress, is the presence of a supportive family environment, including parental warmth, cohesiveness, closeness, and order and organization. The third mediating factor identified by Compas is a supportive individual or agency in the child's environment that provides a support system to aid in coping and offering positive models for identification (p. 398-99). Although the relationship between stress and illness in children has been demonstrated consistently, Boyce and Jemerin's 1990 review of literature also suggests, "Attention to individual differences in children's behavioral, emotional, and biological responsiveness to the environment may provide a more useful perspective for understanding the effects of stress on childhood health" (p. 86).

Certain studies examine the relationships between children's stress and their individual differences and demographic variables. Matthew, Woodall, and Stoney (1990) conducted a longitudinal study on the stability of cardiovascular responses to behavioral stress. Their results support a belief that "cardiovascular responses to behavioral stress are a stable individual difference variable" (p. 1134). Most previous studies focused on short-term effects. Pryor-Brown, Cowen, Hightower, and Lotyczewski (1986) studied the demographic differences of children experiencing specific stressful life events. Results revealed differences between males and females, as well as between urban versus suburban settings. With few exceptions, no differences surfaced in types of stressful life events experienced by girls and boys; however, girls judged the events to be more upsetting than boys. Urban children experienced more stressful life events than suburban children and judged the experiences to be more upsetting.

Other researchers take a different perspective in their studies of childhood stress, concentrating their efforts on the effects stressors have on school children's social and cognitive functioning. Garmezy, Masten, and Tellegen (1984) reviewed empirical articles focusing on stress and its relation to children's competence, stress resistance, risk, and other protective factors. They found that research clustered around three different approaches. The reviewers were then able to discuss stress resistance within three separate models: the compensatory, the challenge, or the protective factors model (p. 97). Dubow and Tisak (1989), investigating the relationship of stressful life events to academic and social adjustment, found that social support and problem-solving skills moderate the relation between stressful life events and behavior problems. They also explain a buffering effect of problem-solving skills on grade-point average and parent-rated behavior problems.

More social support and increased problem-solving skills can buffer children's competency behaviors from the negative effects of stress.

Still other researchers take on the important task of investigating children's coping styles, another individual factor in the link between stress and children's health. How do children's awareness and appraisal of the stressor affect their stress? "Individual coping styles can mitigate or exacerbate the impact of a stressor on personal functioning" (Altshuler & Ruble, 1989, p. 1337). These authors investigated developmental changes in coping skills and strategies used by children in dealing with uncontrollable stress. They tried to determine at what stages of development children can appropriately and successfully "focus on the problem in order to change the situation" (p. 1337). This approach or monitoring strategy is considered appropriate for handling controllable stressors. In addition, Altshuler and Ruble tried to determine when children could "manage the situation as it currently exists...to reduce one's negative response" (p. 1337). This avoidance strategy seems more suited to uncontrollable stressors. When researchers asked children about coping, fewer "approach" strategies were mentioned for uncontrollable situations; however, older children mentioned some cognitive distraction strategies. Behavioral distraction was the most commonly used strategy for uncontrollable stressors across all age levels.

Evidently, researchers study childhood stress and its connection with health by investigating different stressors' influence on children's stress experience, the children's responses to the stressors, and the personal or demographic factors that can modify the stress effects on children's health. In the next section, I will review techniques that are available for use in assessing children's stress. Strategies for coping with the stress are left for a future paper.

Techniques for Assessing Stress in Children

Although more researchers now study stress in children, "there is a scarcity of instruments with good psychometrics for the measurement of student stressors" (Matheny, Aycock, & McCarthy, 1993, p. 122), and "most research on measurement and identification of stress in childhood is based upon adult perception" (Dickey & Henderson, 1989, p. 14). Studies of adult stress form the basis for many research hypotheses about children and stress. Only a few researchers modify adult measures of stress for use with children or develop new indices or scales specifically for children. Even with the studies looking more closely at stress in children, virtually all discussion focuses on adult interpretation of the results. This is partially understandable because until recently researchers seldom asked children about their stress experiences. Much of what is known or discussed about stress in children comes from their parents (Pollari & Bullock, 1989). Now some researchers (Dickey & Henderson, 1989, Pryor-Brown, Cowen, Hightower, & Lotyczewski, 1986) are interviewing children privately and confidentially to learn how they experience and evaluate stress. Gamble and McHale (1989) use a checklist of experiences to question the children. Reasearchers finally are asking children to identify what stresses them, to reveal how they appraise the situation, and to explain the coping skills they use or know are available.

Techniques for assessing childhood stress now include the detailed observation of a child's behavior, direct physiological assessment of a child, rating of a child by adults, child self-reports, and interviews with a child. With combined use of these techniques, comprehensive assessment of stress in children is possible.

Frequently, researchers employ other scales that assess segments of a child's experience that may relate to stress in conjunction with measures of stress. However, researchers often use such scales in place of appropriate stress measures. Adjustment has been measured by the Self-Appraisal Inventory (SAI), an instrument for measuring emotional adjustment; Quay and Peterson's (1975) Behavior Problem Checklist (BPC) and their Revised Behavior Problem Checklist (1983) are used to measure social adjustment as rated by parents (Dubow & Tisak, 1989, Nelson, 1982); and Harter's (1983) Self-Perception Profile for Children (SPPC) provides an overall assessment of a child's self-evaluation and self-worth (Gamble & McHale, 1989). Roosa, Gensheimer, Short, Ayers, and Shell (1989) also used the SPPC and Wills' (1985) Coping Strategies Inventory; the AML Behavior Rating Scale (Cowen et al., 1973), which evaluates school adjustment problems identified by teachers; and the Children's Depression Inventory (Kovacs, 1985). This inventory offers a modification to be

used with children of Beck's (1961) Depression Inventory for adults (BDI). Gamble and McHale (1989) and Beck and Rosenberg (1986) used Kovac's 1981 revision of the BDI in their studies. A study by Dubow and Tisak (1989) used the Social Support Appraisals Scale, developed by Dubow and Ullman in 1989, and the Teacher-Child Rating Scale (T-CRS)(Hightower et al., 1986), consisting of two parts that assess problem and competent behaviors.

Behavioral Observation

Body language, emotional responses, and deviations from common behavioral patterns may indicate stress in children. If a child's body appears closed, but the child has not been particularly shy in the past, the body may be trying to protect the individual from too many negative stimuli or other stressors. Adults should definitely monitor a child who cries for no apparent reason. What stressors operate in the child's life? If the child's normal social interaction patterns change drastically, say, from shy to aggressive or vice versa, an adult should closely observe that child. Does the child's body seem very tight and tense, or does the child complain of headaches or neck, shoulder, or back pain? Is the child not sleeping well, or have sleeping patterns changed? Has the child's appetite or eating habits changed? Observing children's behavior provides an appropriate technique for identifying stress, according to some researchers (Burts, Hart, Charlesworth, & Kirk, 1990, Feldbaum, Christenson, & O'Neal, 1980; Honig, 1986b; Smith & Womack, 1987). They list behaviors found to be good indicators of stress in a child's life and often combine these behaviors into checklists for more detailed behavioral observation. The Classroom Child Stress Behavior Instrument (CCSBI), in conjunction with a scan technique, can be used to observe children's stress behaviors. "Items selected for the CCSBI were derived from teacher input and literature documenting manifestations of stress in child behaviors" (Burts, Hart, Charlesworth, & Kirk, 1990, p. 413). Approximately 50 behaviors indicating stress were categorized as passive, self with self, self with others, and self with object. The list of behaviors includes complaints of feeling sick, stuttering, physical hostility or fights, tremors or tics, nervous laughing, and nail biting.

Other behavioral signs of stress in children, noted by Feldbaum, Christenson, and O'Neal in their 1980 study, are immobility, muscular tension, aversion of gaze, constant rocking, shuffling, or playing with one's clothing. Smith and Womack (1987) suggest that adults should monitor for stress any children reporting or exhibiting symptoms of recurrent headaches, chest pain, abdominal pain, or dizziness. In her article, Honig

(1986b) provides a list of 33 detailed behavioral descriptions that offer "telltale signs of stress in young children," including

- has grave, solemn face; rarely smiles or laughs;
- flinches if teacher or visiting adult approaches with caressing or reassuring gesture of outstretched arm;
- clings to, shadows caregiver, although in group for months; and
- carries out repetitive, stereotyped play that may have destructive aspects (p. 53).

Adults should notice any behavior that is out of the ordinary for a particular child. When they recognize behaviors that indicate childhood stress, they can then attempt to identify the stressor(s), evaluate the severity of the child's stress experience, and facilitate stress relief.

Physiological Monitoring

Certain physiological reactions correlate with stress and may indicate stress in children. Most of these responses can easily be checked within a school setting. Selye's General Adaptation Syndrome alerts us to certain patterns of autonomic responses, or ways the body reacts over time similarly to any stressor, such as elevated heart rate and blood pressure, increased respiratory activity, dry-feeling mouth, heightened large muscle tension, and decreased digestive track functioning. Holmes and Rahe would have us watch for normal, common indicators of illness or accidents if a child experiences many life events and changes in short periods of time. Although only a few studies encourage direct physiological assessment outside of medical settings, the Matthews, Woodall, and Stoney (1990) study raises some hope that monitoring instruments are now appropriately sophisticated, yet simple enough to operate and use at home or in school to aid in assessing children's stress.

In their four-year longitudinal study with children 6 to 18 years old, and later when they were 11 to 21 years, Matthews, Woodall, and Stoney (1990) measured systolic blood pressure, diastolic blood pressure, and heart rate with "an automated, digital electro-sphygmomanometer... a portable, self-contained device that...enables measurements of low levels of blood pressure" (p. 1135). Also, heart rate was determined with a partially automated device that can be preset to correspond to the variation of heart rate among different age

groups and can detect readings invalidated by movement, noise, or inadequate inflation. The pressure cuffs used with this equipment come in various sizes, allowing an appropriate fit for children.

As with behavioral indicators, adults should monitor any abnormal physiological changes such as elevated blood pressure and heart rate. Raised cholesterol levels and elevated temperatures also are linked to the stress response. Although taking blood samples is more invasive, the a school nurse can send a child to have blood work and laboratory testing done if the child exhibits other symptoms of stress. Parents, teachers, or other support personnel in the school can take a child's temperature, which is a simple procedure.

Biodots, small plastic disks with adhesive backs, measure distinct levels of skin temperature and can be used to measure stress. Parrott (1990) used a particular brand of biodots, Stressdots, in a study about relaxation training for children. Stressdots monitor each child's stress level. "Stressdots discriminate between seven distinct levels of skin temperature" (p. 71). When a child is under stress, blood vessels in the hands receive nerve and hormone signals to constrict, restricting blood flow and causing the hands to become colder. When the child relaxes, skin temperature rises and the Stressdot changes color.

An elevated level of cortisol in a child's saliva provides another stress indicator. Goldstein, Field, and Healy (1989) used behavioral observations, heart rate, and cortisol level as measures of stress in children. The children played with friends or acquaintances in an experimental setting. At the end of the play sessions, researchers used a syringe to obtain a (1cc) sample of saliva from under the children's tongues. The children's physiology became synchronized when they played with friends and the physiologic measures, including lower cortisol levels, revealed less stress.

Adult Ratings

While many adults may be uncomfortable with physiological measures, several rating scales, offered for use by parents, teachers, or other caregivers in a child's life, measure childhood stress from the adult's perspective. Some scales require an adult to check a list of life events that the child experienced over a specified time. Other scales help adults evaluate a child's anxiety level, social interactions, problem-solving skills, academic competency, or discipline problems as a means of measuring stress.

Coddington (1972) modified the 1967 Holmes and Rahe Social Readjustment Rating Scale for use with children (Beck & Rosenberg, 1986; Patterson & McCubbin, 1983). Sandler and Block (1979) developed

another child adjustment rating scale, modifying Coddington's scale. Coddington developed at least four scales to cover different age groups. His scales provid some of the best-known measures of stress in school-age children. These scales give a weight to particular life events, both positive and negative, by relating the events to the impact they may have on the child's life and amount of stress the child experiences. Garmezy, Masten, and Tellegen (1984) used the Life Events Questionnaire (LEQ), based on Coddington's (1972a, 1972b) work, as well as a series of interviews with the mothers to assess stress in a child's life.

In 1981, Elkind developed another scale that assesses children's stress levels. This scale also focuses on the impact that recent changes in a child's life have on stress level. In Britain, Monaghan, Robinson, and Dodge (1979) developed a British Life Events Inventory for children by adapting Coddington's (1972) scale, referring to Holmes' and Rahe's (1967) work. This inventory added some new features to the development process. They included relevant events, while keeping unnecessary variation and extreme values to a minimum.

Self Reports

When adults become convinced that asking children about their stress is appropriate, several self-report inventories are available and ask children about their stress in several different ways. Most instruments commonly ask children to complete a survey or checklist about their feelings or recent events in their lives. Adults compare these responses with standardized profiles for the inventory. They then determine the children's stress status and develop appropriate interventions for reducing this stress. Although children contribute to this process, the outcome still depends heavily upon adult evaluation. However, these inventories do help identify stressors in the children's lives and aid in evaluating the severity of their reactions to the stressors.

Gamble and McHale (1989) used a self-report instrument for assessing stress in children. They employed the Sibling Stress and Coping Inventory (SSCI) to assess stress in the siblings of handicapped children. In an earlier study (1985), after initial interviews and parental reports, researchers regularly called and questioned the children by telephone for several weeks. Questions for the children concerned situations involving interaction with the handicapped siblings. The researchers wanted to elicit information about the children's own actions, feelings, and coping strategies. Investigators generated an inventory consisting of

seven categories of stressors and used it as the SSCI to question children and determine the frequency with which they experienced certain events. To assess the effects involved with each of the stressor events, the children rated the amount of anger they felt, or how mad they were because of or during the event. Children then shared their thoughts and actions when their siblings made them mad. Later, researchers asked the children to think of specific situations and relate their thoughts and actions.

Using another assessment tool, students completed a questionnaire in Basch and Kersch's 1986 study. Items from the Adolescent Life Change Events Scale (ALCES), developed by Yeaworth et al. in 1980, were arranged randomly. In a closed-reponse format, the students indicated how upsetting they perceived each life event to be.

Both of these studies that ask children about their stress by using self-report instruments verify results from previous investigations that were also concerned with identifying children's stressors. Researchers emphasize the importance of adults in the child's life. Adults help children become aware of what stresses them and help them learn to cope effectively with the stressors. Asking the children about personal stressors remains a vitally important part of the process. Adults then can help them recognize stress, identify stressors, and prepare for and work through stressful events. Pryor-Brown et al. (1986) felt an important element of their study was that "its prime data are based on children's reports of the occurrence of stressful and their perceived upsettingness....Children's ratings of event stressfulness are, per se, face-valid judgments" (Pryor-Brown, Cowen, Hightower, & Lotyczewski, 1989, p. 344).

In yet another setting, Roosa, Gensheimer, Short, Ayers, and Shell used a film depicting several events from the Children of Alcoholics Life Events Schedule (Roosa, Sandler, Gehring, Beals, & Cappo, 1988), to recruit children for their 1989 pilot study. This study tested an intervention program for reducing stress in a high-risk population -- children of alcoholics. The scale, developed specifically for children of alcoholics, provided a realistic picture from a child's perspective of stressors experienced in a family containing an alcoholic.

Interviews

Several researchers now interview children, going to the ultimate authority, the children, to assess their stress. Pryor-Brown, Cowen, Hightower, and Lotyczewski (1986) and Dickey and Henderson (1989) ask children directly what they considered stressful in their lives and what they did to reduce that stress.

The researchers emphasized that interviews should be held privately in a relaxed atmosphere and in an environment familiar to the child. Information should remain as confidential as possible. Also, the interviewer should assure the child that the interview is to help the child and that no adverse consequences will follow.

Discussion

Both pleasant and negative life events, including daily hassles, can and do cause stress. Stress can produce detrimental effects in childrens lives. They respond to stress in different ways, depending on many personal and environmental variables. However, the stress responses in school children are sufficiently predictable to facilitate recognition by parents, teachers, and other support personnel. Once caring adults recognize stress in school children, they can begin to identify the stressors. A comprehensive assessment of the stress should follow, including listening to the children's perspectives. Asking them what they think and feel also remains critical in our evaluation of their stress intensity or level, their stress response. After assessing stress in children by using appropriate techniques, caring people in the lives of these children can implement effective intervention strategies. Reducing the stress can alleviate or moderate the negative effects of stress on children's health. A future paper will address strategies for helping school children reduce their stress effectively, learn more appropriate coping skills, and practice stress-management techniques.

References

~Altshuler, J. L., & Ruble, D. N. (1989). Developmental changes in children's awareness of strategies for coping with uncontrollable stress. Child Development, 60, 1337-1349.

~Basch, C. E., & Kersch, T. B. (1986, June/July). Adolescent perceptions of stressful life events. Health Education, pp. 4-7.

Bauer, K. L. (1989, November). Helping children deal with stress. PTA Today, pp. 8-10.

~Beck, S., & Rosenberg, R. (1986). Frequency, quality, and impact of life events in self-rated depressed, behavioral-problem, and normal children. Journal of Consulting and Clinical Psychology, 54, 863-864.

~Boyce, W. T., & Jemerin, J. M. (1990). Psychobiological differences in childhood stress response: I. Patterns of illness and susceptibility. Journal of Developmental and Behavioral Pediatrics, 11(2), 86-94.

~Burts, D. C., Hart, C. H., Charlesworth, R., & Kirk, L. (1990). A comparison of frequencies of stress behaviors observed in kindergarten children in classrooms with developmentally appropriate versus developmentally inappropriate instructional practices. Early Childhood Research Quarterly, 5, 407-423.

~Cannon, W. B. (1927). The James-Lange theory of emotions: A Critical examination and alternate theory. American Journal of Psychology, 39, 104-124.

~Coddington, R. D. (1972 a). The significance of life events as etiologic factors in the diseases of children I – A survey of professional workers. Journal of Psychosomatic Research, 16, 7-18.

~Coddington, R. D. (1972 b). The significance of life events as etiologic factors in the diseases of children -- II A study of a normal population. Journal of Psychosomatic Research, 16, 205-213.

~Compas, B. E. (1987). Coping with stress during childhood and adolescence. Psychological Bulletin, 101, 393-403.

~Cowen, E. L., & Work, W. C. (1988) Resilient children, psychological wellness, and primary prevention. American Journal of Community Psychology, 16, 591-607.

~Dickey, J. P., & Henderson, P. (1989, Feb/March). What young children say about stress and coping in school. Health Education, pp. 14-17.

~Dubow, E. F., & Tisak, J. (1989). The relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving skills. Child Development, 60, 1412-1423.

~Feist, J., & Brannon, L. (1988). Health Psychology. Belmont, CA: Wadsworth Publishing.

~Feldbaum, C. L., Christenson, R. E., & O'Neal, E. C. (1980). An observational study of the assimililation of the newcomer to the school. Child Development, 51, 497-507.

~Gamble, W. C., & McHale, S. M. (1989). Coping with stress in sibling relationships: A comparison of children with disabled and nondisabled siblings. Journal of Applied Developmental Psychology, 10, 353-373.

~Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. Child Development, 55, 97-111.

Gibbon, C. (1988). Children's humour: its nature and role in coping with stress. Early Child Development and Care, 39, 201-220.

~Goldberger, L. & Breznitz, S. (Eds.), Handbook of stress: Theoretical and clinical aspects. New York: Free Press.

~Goldstein, S., Field, T., & Healy, B. (1989). Concordance of play behavior and physiology in preschool friends. Journal of Applied Developmental Psychology, 10, 337-351.

~Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

~Honig, A. S. (1986a). Stress and coping in children: I. Young Children, 41(4), 50-63.

~Honig, A. S. (1986b). Stress and coping in children: II. Interpersonal family relationships. Young Children, 41(5), 47-59.

~Lazarus, R. S. (1984). Thoughts on relations between emotion and cognition. In K. R. Scherer and P. Ekman (Eds.), Approaches to Emotion. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers, 1984, pp. 247-258.

~Lazarus, R. S., Coyne, J. C., & Folkman, S. Cognition, emotion, and motivation: The doctoring of Humpty-Dumpty. In K. R. Scherer and P. Ekman (Eds.), Approaches to Emotion. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers, 1984, pp. 221-238.

~Matheny, K. B., Aycock, D. W., & McCarthy, C. J. (1993). Stress in school-aged children and youth. Educational Psychology Review, 5(2), 109-134.

~Matthews, K. A., Woodall, K. L., & Stoney, C.M. (1990). Changes in and stability of cardiovascular responses to behavioral stress: Results from a four-year longitudinal study of children. Child Development, 61, 1134-1144.

~Monaghan, J. H., Robinson, J. O., & Dodge, J. A. (1979). The children's life events inventory. Journal of Psychosomatic Research, 23, 63-68.

~Nelson, G. (1982). Coping with the loss of father: Family reaction to death or divorce. Journal of Family Issues, 3(1), 41-60.

~Parrott, L. III. (1990). Helping children manage stress: Some preliminary observations. Child and Family Behavior Therapy, 12(1), 69-73.

~Patterson, J. M., & McCubbin, H. I. (1983). The impact of family life events and changes on the health of a chronically ill child. (1983). Family Relations, 32, 255-264.

~Pollari, J., & Bullock, J. R. (1989). When children move: some stresses and coping strategies. Early Child Development and Care, 41, 113-121.

~Pryor-Brown, L., Cowen, E. L., Hightower, A. D., & Lotyczewski, B. S. (1986). Demographic differences among children in judging and experiencing specific stressful life events. Journal of Special Education, 20(3), 339-346.

~Roosa, M. W., Gensheimer, L. K., Short, J. L., Ayers, T. S., & Shell, R. (1989). A preventive intervention for children in alcoholic families: Results of a pilot study. Family Relations, 38, 295-300.

~Sarafino, E. P., & Armstrong, J. W. (1986). Child and adolescent development (2nd ed.). St. Paul: West Publishing.

~Selye, H. (1982). History and present status of the stress concept. In L. Goldberger & S. Breznitz (Eds.), Handbook of stress: Theoretical and clinical aspects (pp. 7-17). New York: Free Press.

~Smith, M. S., & Womack, W. M. (1987). Stress management techniques in childhood and adolescence. Clinical Pediatrics, 26, 581-585.

~Swirsky-Sacchetti, T., & Margolis, C. G. (1986). The effects of a comprehensive self-hypnosis training program on the use of factor VIII in severe hemophilia. The International Journal of Clinical and Experimental Hypnosis, 34, 71-83.